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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/805,760	03/22/2004	Paul Anthony Bristow	149101-1	1252
23413	7590	07/13/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			HUSON, MONICA ANNE	
			ART UNIT	PAPER NUMBER

1732

DATE MAILED: 07/13/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/805,760

Applicant(s)

BRISTOW ET AL.

Examiner

Monica A. Huson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 March 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>061704</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

Claim 7 is objected to because of the following informalities: The word “forminated” is believed to be a misspelling of “foraminated”. (See applicant’s specification, paragraph [0022]). For purposes of examination, it will be interpreted that applicant intended claim 7 to require that the shaped substrate is *foraminated*. Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –
(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 17 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by Holtrop et al. (U.S. Patent 4,529,641). Regarding Claim 17, Holtrop et al., hereafter “Holtrop,” show that it is known to carry out a method of forming a layered article (Abstract), the method comprising heating a substrate sheet to a temperature (Column 4, lines 59-62; It is noted heating the sheet is the positively-claimed method step, while “[allowing] lofting of fibers” is only an intended use of the heating step, and therefore, not a positively-recited method step.); disposing the substrate sheet against a pressure box (Column 4, lines 62-63); pushing the substrate sheet onto a mold to form a shaped substrate (Column 4, lines 62-63); heating a film layer (Column 4, lines 59-62); disposing the film layer adjacent to the shaped substrate (Column 4, lines 62-66); pulling a vacuum through the shaped

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substrate (Column 5, lines 3-5); and pulling the film layer against the shaped substrate to form the layered article (Column 5, lines 9-14).

Regarding Claim 20, Holtrop shows the process as claimed as discussed in the rejection of Claim 17 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Column 4, lines 33-35).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-2, 6-7, and 9-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtrop, in view of Nagayama et al. (U.S. Patent 5,854,149). Regarding Claim 1, Holtrop shows that it is known to carry out a method of forming a layered article (Abstract), the method comprising thermoforming a substrate sheet to form a shaped substrate, wherein the shaped substrate has a void content sufficient to allow a vacuum to be applied through the shaped substrate (Column 4, lines 58-68); pulling a vacuum through the shaped substrate (Column 5, lines 3-5); and pulling a film layer onto a surface of the shaped substrate to form the layered article (Column 4, lines 51-68; Column 5, lines 3-14). Holtrop does not specifically show a fiber-reinforced plastic material. Nagayama et al., hereafter "Nagayama," show that it is known to carry out a method including thermoforming a fiber-reinforced plastic material having a void content (Column 10, lines 43-46; Column 22, lines 47-67). Nagayama and Holtrop are combinable because they are concerned with a similar technical field, namely, methods of thermoforming layered articles. It

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would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nagayama's fiber-reinforced plastic material as that in Holtrop's molding process in order to produce an article which satisfies certain end-use foamed-plastic reinforcement specifications.

Regarding Claim 2, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the film layer further comprises a compatible layer (Column 5, lines 9-14), meeting applicant's claim.

Regarding Claim 6, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show using a specific fiber size. Nagayama shows that it is known to carry out a method wherein the fibers have a fiber diameter of about 6 micrometers to about 25 micrometers, and a fiber length of about 2 mm to about 75 mm (Column 12, lines 1-12). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nagayama's fibers as reinforcements in Holtrop's foamed plastic in order to produce an article which satisfies certain end-use foamed-plastic reinforcement specifications.

Regarding Claim 7, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including showing a [foraminated] substrate (Column 1, lines 19-21; It is noted that foamed articles can be considered as being foraminated, i.e. having holes.), meeting applicant's claim.

Regarding Claims 9 and 10, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a specific fiber and plastic composition. Nagayama shows that it is known to carry out a method wherein the substrate sheet comprises about 35 weight percent to about 75 weight percent plastic material; about 35 weight percent to about 65 weight percent fibers, wherein the weight percents are based on a total weight of the substrate sheet (Column 12, lines 15-26). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was

made to use Nagayama's specific substrate sheet composition during Holtrop's forming method in order to produce an article which satisfies certain end-use foamed-plastic reinforcement specifications.

Regarding Claim 11, Holtrop shows the process as claimed as discussed in the rejection of Claim 9 above, including a method wherein the plastic material is polystyrene (Column 1, lines 62-66), meeting applicant's claim.

Regarding Claim 12, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the substrate sheet is thermoformed with a membrane assisted vacuum pressure forming method with plug assist (Column 5, lines 3-5), meeting applicant's claim.

Regarding Claim 13, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including a method further comprising disposing a tie-layer between the shaped substrate and the film layer (Column 4, lines 33-35), meeting applicant's claim.

Regarding Claim 14, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein thermoforming the substrate sheet further comprises heating a substrate sheet to a temperature (Column 4, lines 59-62; It is noted heating the sheet is the positively-claimed method step, while "[allowing] lofting of fibers" is only an intended use of the heating step, and therefore, not a positively-recited method step.), meeting applicant's claim.

Regarding Claim 15, Holtrop shows the process as claimed as discussed in the rejection of Claim 14 above, but he does not show heating to a temperature about 232C to about 371C. Nagayama shows that it is known to carry out a method wherein the heating temperature is 250C (Column 28, lines 57-66). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Nagayama's processing temperature during Holtrop's thermoforming process in order to properly

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process and form the specific molding material without overheating or underheating.

Regarding Claim 16, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, including a method wherein the substrate sheet further comprises a nonwoven scrim disposed on a surface of the substrate sheet (Column 6, lines 23-26), meeting applicant's claim.

Claims 3-5 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtrop and Nagayama, further in view of Tokoro et al. (U.S. Patent 5,622,756).

Regarding Claim 3, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not show a specific void content of his substrate. Tokoro et al., hereafter "Tokoro," show that it is known to carry out a method of molding a foamed polystyrene wherein the void content is greater than about 5 volume percent based on the total volume of the shaped substrate (Column 9, lines 47-67; Table 2, Examples 1-11). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Tokoro's void content limitation as that for Holtrop's substrate material in order to produce an article which satisfies certain end-use void specifications.

Regarding Claims 4 and 5, Holtrop shows the process as claimed as discussed in the rejection of Claim 3 above, but he does not show a specific void content of his substrate. Tokoro shows that it is known to carry out a method wherein the void content is about 25 volume percent to about 50 volume percent (Table 2, Examples 1-11). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Tokoro's void content limitation as that for Holtrop's substrate material in order to produce an article which satisfies certain end-use void specifications.

Regarding Claim 8, Holtrop shows the process as claimed as discussed in the rejection of Claim 1 above, but he does not specifically use an open celled fiber-reinforced plastic material. Tokoro shows that it is known to carry out a method wherein the shaped substrate is an open-celled, fiber-reinforced plastic material (Column 3, lines 35-38). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Tokoro's specific open-celled, fiber-reinforced plastic material during Holtrop's thermoforming method in order to produce an article which satisfies certain end-use foamed-plastic reinforcement specifications.

Claims 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Holtrop, in view of Tokoro.

Regarding Claim 18, Holtrop shows the process as claimed as discussed in the rejection of Claim 17 above, but he does not show a specific void content of his substrate. Tokoro shows that it is known to carry out a method wherein the shaped substrate is a fiber-reinforced plastic material having a void content of greater than about 5 volume percent based on the total volume of the shaped substrate (Column 9, lines 47-67; Table 2, Examples 1-11). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Tokoro's void content limitation as that for Holtrop's substrate material in order to produce an article which satisfies certain end-use void specifications.

Regarding Claim 19, Holtrop shows the process as claimed as discussed in the rejection of Claim 18 above, but he does not show a specific void content of his substrate. Tokoro shows that it is known to carry out a method wherein the void content is about 10 volume percent to about 50 volume percent (Table 2, Examples 1-11). It would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made to use Tokoro's void content

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limitation as that for Holtrop's substrate material in order to produce an article which satisfies certain end-use void specifications.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following publication is cited to further show the state of the art with regard to thermoforming foamed articles in general:

U.S. Patent Application Publication 2003/0220036 to Lee et al.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monica A. Huson whose telephone number is 571-272-1198. The examiner can normally be reached on Monday-Friday 6:45am-3:15pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Christina Johnson can be reached on 571-272-1176. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Monica A Huson

July 10, 2006